



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Richard A. SCHUMACHER et al.

Serial No.: 10/622,117

Group Art Unit: Unassigned

Filed: July 18, 2003

Examiner: Unassigned

For: PHOSPHODIESTERASE 4 INHIBITORS, INCLUDING AMINOINDAZOLE AND AMINO BENZOFURAN ANALOGS

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.56, 1.97 and 1.98**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This information disclosure statement is made in accordance with 37 C.F.R. §§ 1.56, 1.97 and 1.98 as follows:

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- ☐ within three months of the filing date of a national application other than a CPA under § 1.53(d);
  - ☐ within three months of the actual filing date of the national phase of a PCT application; OR
  - ☒ before the mailing of a first substantive office action (including after filing of an RCE).
- ☐ Under 37 C.F.R. § 1.97(c), this information disclosure statement is filed after the periods specified in 37 C.F.R. § 1.97(b), but before the mailing date of:
- ☐ a final rejection under 37 C.F.R. 1.113;
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- ☐ the statement as specified in 37 C.F.R. § 1.97(e) set out below; OR
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  - ☐ termination of prosecution, e.g. Ex Parte Quayle, M.P.E.P. § 609(B)(2); OR
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Statements Under 37 C.F.R. 1.97(e)

- ☐ Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application having a mailing date not more than three months prior to the filing date of this information disclosure statement; or
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and to the knowledge of the undersigned attorney after making reasonable inquiry, no item of information contained in this information disclosure statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing date of the information disclosure statement.

Cited Materials

- ☐ Copies of materials listed but not attached were cited in benefit (35 U.S.C. § 120) ancestor application Serial No. \_\_\_\_\_, on Form 892 by the Examiner and/or Form 1449 by the applicant; see 37 C.F.R. § 1.98(d).
- ☐ Copies of materials listed but not attached were cited in an international search report dated \_\_\_\_\_.

☒ Copies of the materials listed are attached.

Non-English Language References

- ☐ An English-language search report or equivalent paper from a foreign patent office is provided indicating the relevance of the cited reference(s).
- ☐ A foreign-language search report from a foreign patent office is provided, and pertinent parts are translated substantively below:

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A = document defining the general state of the art  
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- ☐ Translation of other relevant information on foreign search report

Other Information

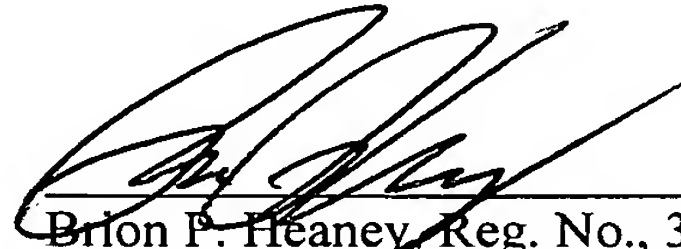
The instant application is related to copending patent applications Serial No. 10/051,309, filed January 22, 2002, Serial No. 10/361,634 filed February 11, 2003, Serial No. 10/754,600, filed January 12, 2004, Serial No. 10/662,833, filed July 21, 2003; and Serial No. 10/715,819, filed November 19, 2003. Enclosed are copies of documents cited in said related applications.

Payment of Fees Due (If Any):

- ☐ A check for \$\_\_\_\_\_ covering the fee identified above is attached.
- ☐ Please charge to Deposit Account No. 13-3402 \$\_\_\_\_\_ for the fee identified above.

☒ The Commissioner is hereby authorized to charge or credit any overpayment to Deposit Account #13-3402, two copies of this paper are attached for this purpose.

Respectfully submitted,



Brian P. Heaney, Reg. No., 32,542  
Attorney/Agent for Applicants

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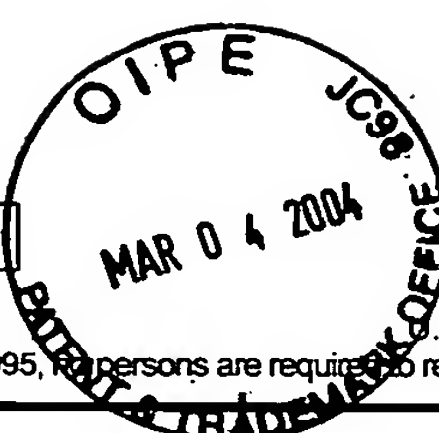
Attorney Docket No.: MEMORY-29

Date: March 4, 2004

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Sheet

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Application Number	10/622,117
Filing Date	July 18, 2003
First Named Inventor	Allen T. HOPPER
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	MEMORY-29

### S. PATENT DOCUMENTS

Examine r Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
		5,591,776		Cavalla et al.	01/07/1997	
		5,622,977		Warrellow et al.	04/22/1997	
		5,633,257		Warrellow et al.	05/27/1997	
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		5,698,711		Palfreyman	12/16/1997	
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		6,297,264		Head et al.	10/02/2001	

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

2

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Application Number

10/622,117

Filing Date

July 18, 2003

First Named Inventor

Allen T. HOPPER

Group Art Unit

Unassigned

Examiner Name

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Attorney Docket Number

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		Number	Kind Code <sup>2</sup> (if known)			
	1	5,889,014			3/30/1999	
	2	6,153,630			11/28/2000	
	3	2002151566			10/17/2002	

### FOREIGN PATENT DOCUMENTS

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		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
		FR	2729142	A1	Nadler et al.	07/12/1996		
		EP	1116711	A2	Chassot et al	07/18/2001		
		EP	0994100	A1	Shinji et al.	04/19/2000		
		WIPO	96/21435	A1	Cavalla et al	07/18/1996		
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		WIPO	94/14742			07/07/1994		
		WIPO	98/58901			12/30/1998		
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		WO	94/02465			2/3/94		
		WO	95/01338			1/12/95		
		WO	96 21435			7/18/1996		1, 2
		WO	02 074726			9/26/2002		3

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
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		HEILMAN et al, "Synthesis and Antiinflammatory Evaluation of Substitued Isophthalonitriles, Trimesonitriles, Benzonitriles, and Terephthalonitriles", Journal of Medicinal Chemistry, 1978, Vol. 21, No. 9, pp. 906-913, XP-002226236	
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		JAMES E. KELLEY et al., "Antirhinovirus structure-activity relationships of 6-substituted-9-(4-methylbenzyl)-2-trifluoromethyl-9H-purines," Eur. J. Med. Chem., 1990, pp. 131-135, Vol. 25	

Examiner Signature		Date Considered	
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10/622,117

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First Named Inventor

Allen T. HOPPER

Group Art Unit

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Attorney Docket Number

MEMORY-29

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		ROGER J. SCHILLING et al., "A High-Throughput Assay For Cyclic Nucleotide Phosphodiesterases," <u>Analytical Biochemistry</u> , 1994, pp.154-158, Vol. 215	
		DONALD V. DANIELS et al., "A Semiautomated Method for the Assay of Cyclic Adenosine 5'-Monophosphate Phosphodiesterase," <u>Analytical Biochemistry</u> , 1996, pp. 367-369, Vol. 236	
		JEAN-JACQUES BOURGUIGNON et al., "9-Benzyladenines: Potent and Selective cAMP Phosphodiesterase Inhibitors," <u>J. Med. Chem.</u> , 1997, pp. 1768-1770, Vol. 40	
		JAMES L. KELLEY et al., "6-(Alkylamino)-9-alkylpurines. A New Class of Potential Antipsychotic Agents," <u>J. Med. Chem.</u> , 1997, pp. 3207-3216, Vol. 40	
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		Peng WANG et al., "Expression, Purification, and Characterization of Human cAMP-Specific Phosphodiesterase (PDE4) Subtypes A, B, C, and D," <u>Biochem. And Biophys. Research Comm.</u> , Vol. 234, 320-324 (1997).	

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		Domine M. T. CHAN et al., "New N- abd O-Arylations with Phenylboronic Acids and Cupric Acetate," Tetrahedron Letters, Vol. 39, 2933-2936 (1998).	
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		Han-Ting ZHANG et al., "Inhibition of Cyclic AMP Phosphodiesterase (PDE4) Reverses Memory Deficits Associated with NDMA Receptor Antagonism," Neuropsychopharmacology, 2000, Vol. 23, pp. 198-204.	
		Han-Ting ZHANG et al., "Effects of Rolipram on Scopolamine-induced Impairment of Working and Reference Memory in the Radial-arm Maze tests in Rats," Psychopharmacology (Berl) 2000 June;150(3):pp. 311-6.	
		T.W. Greene et al., <u>Protective Groups in Organic Synthesis</u> , 3 <sup>rd</sup> Edition, Chapter 3, "Protection for Phenols and Catechols," pp. 246-292, John Wiley & Sons, 1999	
		Japanese Patent Abstract No. 7206789 dated 8/8/1995	

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